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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/770,651	02/03/2004	Frank Dietrich	DIETRICH, F-1	1667

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EXAMINER

DEB, ANJAN K

ART UNIT	PAPER NUMBER
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2858

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/04/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/770,651

Applicant(s)

DIETRICH, FRANK

Examiner

Anjan K. Deb

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 02/03/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 15-34 and cancellation of non-elected claims 1-14 in the reply filed on 10/02/2006 is acknowledged.

Specification

The disclosure is objected to because of the following informalities: Please follow the guidelines indicated below for arrangement of the specification.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

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- (I) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 15, 17, 19, 22, 23, 31-34 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohashi (US 4,292,615).

Re claims 15 and 23, Ohashi discloses electrical component (switching device) having two contacts 11a, 12a a transfer volume 14 comprising a mixture composed of electrically conducting magnetic powder (particles) in non-conductive liquid as contact oil (abstract) for transferring an electrical voltage or current signal (switching device) and an actuating device 15 (magnet) displaces the transfer volume by magnetic forces (magnet 15) relative to contacts 11a, 12a (Fig. 1).

Re claim 17, Ohashi discloses actuating device formed by magnet 15 has an actuator displaceable along the casing 30 (container) without contact, which has at least one magnet 15

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for generating the magnetic forces, and is displaceable along a pre-determined displacement path (indicated by arrow)(Fig. 3a, 3b) for the actuating volume relative to the contacts.

Re claim 19, Ohashi discloses actuating device may be formed by electromagnet which is broadly interpreted as operating as a linear motor for moving in the direction indicated by the arrow (Fig.3a, 3b)(column 4, lines 31-34).

Re claims 22, 31-34, Ohashi discloses electrically conducting magnetic liquid comprising conducting magnetic particles in non-conducting carrier liquid made of oil wherein the carrier liquid has relatively high surface tension (column 3, line 39).

4. Claims 15 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Lu (US 5,429,701).

Re claim 15, Lu discloses electrical component for electrically interconnecting conductors comprising at least two electrical contacts (1a, 2a), transfer volume 6 comprising an electrically conducting magnetic powder (soft magnetic material), for transferring an electrical signal (electric current or voltage signal is transferred to galvanometer 7) and/or an electric voltage and/or an electric current between two of the contacts (1a, 2a), wherein the component has an actuating device 5 (magnet) which, when actuated, displaces the transfer volume (6) by means of magnetic forces relative to the contacts (1a, 2a)(column 3 lines 20-55).

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Re claim 23, discloses transfer volume 6 comprises electrically conducting and magnetic particles (column 3, lines 26-34).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohashi (US 4,292,615) in view of Knapp-Ziller (FR 1,468,702).

Re claim 16, Ohashi disclosed all of the claimed limitations as set forth above including contacts and the transfer volume are arranged in a casing and the actuating device is arranged outside on the casing or outside the casing except at least one wall of the casing constructed as permeable for the magnetic forces of the actuating device.

Knapp-Ziller discloses switching device (relay) having casing wall constructed as permeable (wall constructed by resin mixed with magnetic powder having lower reluctance) to lower magnetic losses (column 2 last paragraph).

At the time the invention was made it would have been obvious for one of ordinary skill in the art to modify Ohashi by making a wall of casing (container) permeable (lower reluctance) for the magnetic forces as disclosed by Knapp-Ziller to lower magnetic losses.

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Re claim 18, Ohashi discloses actuating device formed by magnet 15 displaceable along the casing 30 (container) without contact (Fig. 3a, 3b).

7. Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lu (US 5,429,701) as applied to claim 15 above, in view of Horstmann (US 4,581,525).

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Re claim 16, Lu did not expressly disclose that the contacts and the transfer volume are arranged in a casing and the actuating device is arranged outside on the casing or outside the casing and at least one wall of the casing constructed as permeable for the magnetic forces of the actuating device.

Horstmann discloses contacts and the transfer volume (contacts formed by magnetic powder)(column 2 lines 57-61) are arranged in a casing and an actuating device 19 is arranged outside a casing wall 16 (Fig. 2).

At the time the invention was made it would have been obvious for one of ordinary skill in the art to modify Lu et al. by adding casing disclosed by Horstmann for containing contacts formed by magnetic powder. It would have been obvious for one of ordinary skill in the art to

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construct one wall of the casing with permeable material to enable actuating device to penetrate magnetic field inside the container for aligning magnetic powders.

Re claims 17-19, Lu did not expressly disclose actuating device has an actuator displaceable along the casing without contact which has at least one magnet for generating the magnetic forces and is displaceable along a pre-determined displacement path for the actuating volume relative to the contacts.

Horstmann discloses actuator (displaceable magnetizing head 19) displaceable along a pre-determined displacement path (brought up to approximately 0.5 millimeters from a magnet)(column 5 lines 5,6) displaceable along the casing without contact (Fig. 2). The actuating device disclosed by Horstmann is broadly interpreted as being constructed as a linear motor because of linear movement (brought up approximately 0.5 millimeters) from a magnet by magnetic force.

At the time the invention was made it would have been obvious for one of ordinary skill in the art to modify Lu et al. by adding actuator which has at least one magnet for generating the magnetic forces and is displaceable along a pre-determined displacement path disclosed by Horstmann for actuating contacts formed by magnetic powder.

8. Claims 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lu (US 5,429,701) in view of Koji (JP 04028203A).

Re claims 20-24, Lu did not expressly disclose that the component is a potentiometer whose collector track and resistance track respectively form a contact, that the collector track

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and resistance track are arranged adjacent to one another without contact, that the actuating volume interconnects the collector track and the resistance track that the relative position of the transfer volume along the collector track and along the resistance track can be adjusted with the actuating device.

Koji discloses component comprising collector 5 (current collecting layer) and resistance track 4 (resistance layer) and conductive magnetic powder 2 dispersed in liquid like substance between the layers for forming non-contact potentiometer (Fig. 4a,b).

At the time the invention was made it would have been obvious for one of ordinary skill in the art to modify Lu et al. by implementing contacts with magnetic powder in a potentiometer arrangement as disclosed by Koji for forming non contact potentiometer.

9. Claim 25-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lu (US 5,429,701) in view of Koskenmaki (US 5,522,962).

Re claims 25-30, Lu did not expressly disclose magnetic particles are spherical in shape, having grain size smaller than 50 μm , electrically conducting magnetic core consist of ferrite, magnetic core consist of non- conducting material, magnetic core coated with carbon or metal.

Koskenmaki discloses component with conducting columns 19 formed by aligning electrically conducting magnetic particles having spherical shape, having grain size smaller than 50 μm (column 9, lines 9-11), ferromagnetic core, and coating of conductive material or magnetic coating over non-magnetic core (column 9, lines 1-8).

At the time the invention was made it would have been obvious for one of ordinary skill in the art to modify Lu et al. by including magnetic particles are spherical in shape, having grain

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size smaller than 50 μm , electrically conducting magnetic core consist of ferrite, magnetic core consist of non-conducting material, magnetic core coated with carbon or metal as disclosed by Koskenmaki for suitability of its intended use.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lindblom et al. (US 2006/0273785 A1) discloses electrical component (magnetic field sensing device) comprising colloidal suspension of magnetic particles in fluid wherein a magnetic pattern is made visible by activation with external magnetic field.

Jin (US 4,644,101) discloses pressure-responsive position sensor comprising magnetic powder producing electrical signal between electrical contacts (Fig. 7).

Strasser (US 5,169,471) discloses electrical component (circuit board) comprising electrically conducting magnetic powder, which are aligned to form a conducting path by application of magnetic field 280d (Fig. 16) for automatic connection of electrical components 120 on a circuit board assembly 10 (Fig. 1,3).

Arai (US 20040074569) discloses magnetic powder having 5-50 nm grain size for achieving higher magnetization and excellent magnetic properties.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Anjan K. Deb whose telephone number is 571-272-2228. If

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attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor,

Andrew H. Hirshfeld can be reached at (571) 272-2168.



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12/21/06